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TECHNICAL NOTES
of the
ALASKA FOREST RESEARCH CENTER
ROCKY MOUNTAIN STATION
U. S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE

No. 21

JUNEAU, ALASKA

Girdling and Poisoning of Live Culls

Merchantable pulptimber stands in Southeast Alaska have about 15 live culls per acre with an average dbh of 25 inches. The cull trees are usually hemlock and western redcedar. These and other residual trees remaining after logging should be eliminated to remove competition with more desirable reproduction. Technical Note No. 13 issued in March 1951 showed that poisoning live culls with 80 percent ammonium sulfamate crystals applied at a rate of one tablespoon per cup chopped into sapwood eight inches apart was faster than either girdling with a power saw and axe or with axe alone. A second poisoning test made in the spring of 1952 confirmed treatment times given in that note.

The superiority of poisoning over girdling for both hemlock and cedar live culls is more pronounced when percentage of kill is compared. At the end of eleven months 62 percent of the poisoned hemlock and 25 percent of the poisoned cedar were dead. Eighteen months after treatment 90 percent of the hemlock and 100 percent of the cedar were dead. At the end of 18 months all of the hemlock girdled by axe and 96 percent of those girdled by axe and saw were still alive, although gradually showing the effect. Of the cedar all of the axe-girdled and 61 percent of those girdled by axe and saw were alive at the end of 18 months (Table 2).

Spring poisoning resulted in a quicker kill. Twenty-three hemlock and 9 cedar were poisoned in late May using the same method, but slightly wider spacing of cups and consequently less poison. Three months later 20 percent of the hemlock were dead and another 48 percent considered 75 percent dead. The remainder were all dying and probably will be dead by spring.

The cedar turned brown within a few weeks and at the end of three months 56 percent were more than half dead. Cedar shows the effects sooner but apparently takes a little longer to die.

Large trees die as quickly as small trees if the cups are kept the same distance apart regardless of the size of the trees. A spacing of about 8 inches between cups has proved satisfactory and will give fast results.

Table 1.--Relation of dbh to time and method of treatment. (From Technical Note No. 13)

Diameter	Poison 1/		Axe		Saw and Axe	
	No.	Av.time	No.	Av.time	No.	Av.time
8-12	4	1.5	1	1.5	7	1.9
13-17	4	2.4	3	1.3	8	2.4
18-22	4	3.8	7	4.0	6	3.8
23-27			7	6.0	9	4.9
28-32	2	6.0	4	5.4	4	7.8
33-37			6	7.8	1	7.5
38-42	1	6.0	5	6.7	4	8.8
43-47			1	19.0	2	17.0

1/ Excludes trees from two plots for which treatment times were not recorded separately.

Table 2.--Type of treatment and mortality of treated trees.

Dbh group	HEMLOCK						CEDAR					
	Poison		Axe		Saw and Axe		Poison		Axe		Saw and Axe	
	Treated	Dead 1/	Treated	Dead	Treated	Dead	Treated	Dead	Treated	Dead	Treated	Dead
8-12	7	7	1	0	6	1	0	-	0	-	0	-
13-17	10	9	3	0	4	0	1	1	0	-	4	4
18-22	6	6	7	0	5	0	1	1	0	-	1	1
23-27	1	1	7	0	6	0	0	-	0	-	4	0
28-32	3	2	2	0	3	0	1	1	1	0	1	0
33-37	0	-	3	0	0	-	0	-	2	0	1	0
38-42	2	1	0	-	3	0	1	1	4	0	1	0
43-47	0	-	0	-	1	0	0	-	0	-	1	0

1/ Original number treated.
Dead at 18 months.

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H. E. Andersen

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